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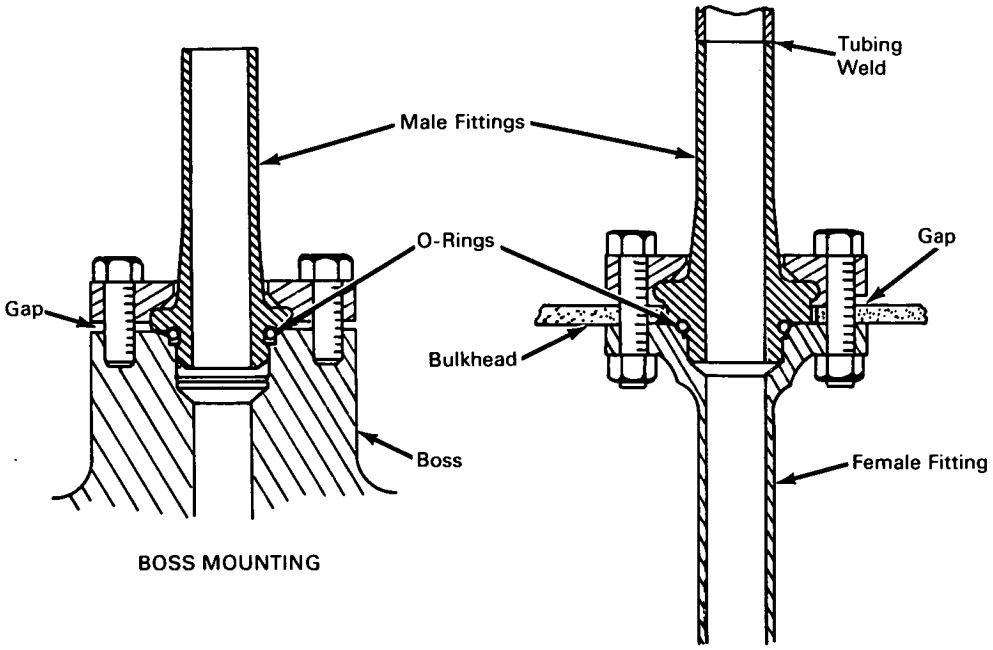
Brief 66-10020

NASA TECH BRIEF

O-Ring Tube Fittings Form Leakproof Seal in Hydraulic Systems



The problem:

To design inexpensive, leakproof fittings for connecting hydraulic tubing. Standard flared fittings on the ends of lengths of tubing to be joined present interfaces at the two ends where the fittings are coupled to a union. In order to provide leakproof joints at these interfaces, it has been necessary to resort to expensive, close-tolerance machining of the mating surfaces.

The solution:

Specially designed fittings that are welded to the ends of the tubing to be joined, and that can be mated to form a leaktight seal using only one O-ring at the joint.

How it's done:

The fittings have flanged male and female sealing surfaces that incorporate an annular groove arrangement that accepts a single O-ring between the flanges. Flanges are bolted together to produce an effective seal. Possible variations in fittings may include means for bracket mounting, or sealing directly to a component boss.

(continued overleaf)

Notes:

1. Since the fittings are coupled at only one joint, they tend to be more reliable than standard fittings that are coupled to a union at two joints.
2. With slight modification, the fittings can be adapted for use with liquids at cryogenic or elevated temperatures.
3. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama, 35812
   Reference: B66-10020

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code AGP, Washington, D.C., 20546.

Source: North American Aviation, Inc.,
under contract to
Marshall Space Flight Center
(M-FS-481)